WHAT IS CLAIMED IS:

1. A heavy oil reforming method which comprises reacting a heavy oil containing at least one of vanadium and sulfur with water which is in a state of high temperature and high pressure, and then bringing said heavy oil, along with said high-temperature and high-pressure water, into contact with a scavenger for scavenging vanadium and/or sulfur in the heavy oil to thereby eliminate vanadium and/or sulfur from the heavy oil.

2. The method according to claim 1 wherein said water in a state of high temperature and high pressure is supercritical water.

3. The method according to claim 1 wherein said water in a state of high temperature and high pressure is subcritical water.

4. The method according to claim 1 wherein the scavenger comprises at least one substance selected from iron oxide, nickel oxide, metal oxide which forms composite oxide with vanadium, ceramics which adsorb vanadium oxide, calcium compound, hydrocarbon, solid carbon, alumina and silica.

5. The method according to claim 1 wherein said vanadium is scavenged in the form of vanadium oxide and/or a metallic compound of vanadic acid.

6. The method according to claim 1 wherein said sulfur is scavenged in the form of a sulfate and/or a metal sulfide.

7. A heavy oil reforming method which comprises reacting a heavy oil containing at least one of vanadium and sulfur with water, which is in a state of high temperature and high pressure, in the presence of a reaction accelerator, and then bringing said heavy oil, along with said high-temperature and high-pressure water, into contact with a scavenger for scavenging vanadium and/or sulfur in the heavy oil to thereby eliminate vanadium and/or sulfur from the heavy oil.

8. The method according to claim 7 wherein the reaction accelerator comprises at least one substance selected from alkali metal, alkaline earth metal, hydrogen peroxide solution, nitric acid, nitrate and formic acid.

9. An apparatus for reforming a heavy oil comprising a reactor for reacting a heavy oil containing at least one of vanadium and sulfur with water which is in a state of high temperature and high pressure, a scavenging apparatus filled with a scavenger for scavenging sulfur and/or vanadium in the heavy oil, and a connecting pipe for connecting the reactor and the scavenging apparatus; wherein said scavenging apparatus has an inlet port for introducing the heavy oil along with the high-temperature and high-pressure water after the reaction and has a discharge port for discharging the reformed heavy oil.

10. The apparatus according to claim 9 wherein the scavenging apparatus is filled with at least one

substance selected from iron oxide, nickel oxide, metal oxide which forms composite oxide with vanadium, ceramics which adsorb vanadium oxide, calcium compound, solid carbon, hydrocarbon, alumina and silica.

11. The apparatus according to claim 9 further comprising a means for adding a reaction accelerator to the high-temperature and high-pressure water supplied to the reactor.

12. The apparatus according to claim 11 wherein at least one substance selected from alkali metal, alkaline earth metal, hydrogen peroxide solution, nitric acid, nitrate and formic acid is added to the high-temperature and high-pressure water by the reaction accelerator adding means.

13. A gas turbine power generation system having a gas turbine driven by a combustion gas generated by burning a heavy oil reformed by using the heavy oil reforming apparatus set forth in claim 9.

14. The gas turbine power generation system according to claim 13 wherein the heavy oil reforming apparatus is disposed in a fuel supply system which supplies fuel to a gas turbine burner.

15. The gas turbine power generation system according to claim 14 further comprising an exhaust gas heat exchanger for heating water to be supplied to the reactor in the heavy oil reforming apparatus by the exhaust gas released after the gas turbine has been driven.